



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,408	06/28/2001	Christina Woody Mercier	15436.860	2281

22913 7590 08/10/2006

WORKMAN NYDEGGER
(F/K/A WORKMAN NYDEGGER & SEELEY)
60 EAST SOUTH TEMPLE
1000 EAGLE GATE TOWER
SALT LAKE CITY, UT 84111

EXAMINER

JEAN GILLES, JUDE

ART UNIT	PAPER NUMBER
----------	--------------

2143

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/896,408

Applicant(s)

MERCIER ET AL.

Examiner

Jude J. Jean-Gilles

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 18-49 is/are rejected.
- 7) ☒ Claim(s) 8-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>05/03/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is responsive to RCE communication filed on 05/16/2006.

Response to Amendment

1. This action is responsive to the application filed on 05/16/2006. No claims have been amended. There are no newly added claims. Claims 1-49 are pending. Claims 1-49 represent a method and apparatus for "Creating a datapath; parametrizing a set of attributes of the desired datapath; and constructing the data path."

Response to Arguments

2. Applicant's arguments with respect to claims 1, 19 and 20 have been carefully considered, but are not deemed fully persuasive. Applicant's arguments are deemed moot in view of the existing ground of rejection as explained here below, except for claims 8-17 which could be allowable based on limitations not specifically taught by the references such as "evaluating each said candidate data path against a selection metric to rank said candidate data paths from a best candidate data path to a least best candidate data path according to said selection metric; presenting said ranked candidate data paths to a user for selection; and selecting a user-selected candidate data path as the data path to be constructed by said constructing step."

The other dependent claims stand rejected as articulated in the Previous Office Action and all objections not addressed in Applicant's response are herein reiterated.

In response to Applicant's arguments, 37 CFR § 1.11(c) requires applicant to "clearly

point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must show the amendments avoid such references or objections."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-7, and 18-49** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heil (Heil) U.S. Patent No. 6,944,152 B1, in view of Weber (Weber), U.S. Patent No. 6,732,104 B1.

Regarding **claim 1**, Heil discloses the invention substantially as claimed.

Heil discloses a method of creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN (*fig. 3, column 5, lines 49-67*), the method comprising: constructing a data path that provides said set of attributes (*column 6, lines 4-56*). However, Heil does not specifically teach "parameterizing the set of attributes for a desired data path between the process and the storage a device of the SAN.

In the same field of endeavor, Weber discloses "The data transfer paths typically extend through a conventional host bus adapter (HBA) 138 in the server 124-128, through a conventional network, or SAN, fabric ... and ... the logical volume 122 and the data volumes

184 are created based on attributes, or performance parameters, required by the user of the logical volume 122. Such performance parameters typically include size, transaction rate, bandwidth and RAID level, among others... [see Weber; column 8, lines 26-49, column 5, lines 6-33]

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Weber's teachings of a method and apparatus for parameterizing the set of attributes for a desired data path with the teachings of Heil, for the purpose of allowing handling data access requests within the storage system in such a manner that the devices that issue the requests without adversely affecting the ability of the devices that receive the requests to respond to the request.... as stated by Weber in lines 17-24 of column 1. By this rationale **claim 1** is rejected.

Regarding **claim 2**, the combination Heil-Weber discloses the method of claim 1 wherein said set of attributes includes a pre-defined template (*see Heil; column 10, lines 14-26*).

Regarding **claim 3**, the combination Heil-Weber discloses the method of claim 2 wherein said set of attributes includes a data path owner, application, and the server on which the application is executing (*see Heil; column 6, lines 4-19*).

Regarding **claim 4**, the combination Heil-Weber discloses the method of claim 2 wherein said pre-defined template specifies a set of performance, availability, and cost metrics for the desired data path (*see Heil; column 6, lines 4-56*).

Regarding **claim 5**, the combination Heil-Weber discloses the method of claim 4 wherein said set of performance and availability metrics includes at least one of a

number of threads, a security level, and a default volume size and characteristics, default path characteristics (see *Heil*; column 2, lines 61-65).

Regarding **claim 6**, the combination Heil-Weber discloses the method of claim 1 wherein said parameterizing step includes a step of entering a user-defined attribute for inclusion in said set of attributes (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 7**, the combination Heil-Weber discloses the method of claim 6 wherein said entering step includes entry of said user-defined attribute by use of a graphical user interface coupled to the SAN (see *Heil*; fig. 4, item 156).

Regarding **claim 18**, the combination Heil-Weber the method of claim 1 wherein said constructed data path includes all physical, logical and security component identification and configuration information sufficient to operably link the process to an identified data volume of the SAN (see *Heil*; column 2, lines 42-67).

Regarding **claim 19**, the combination Heil-Weber discloses a method of configuring a SAN, the SAN providing connectivity between a server and a storage device in the SAN (see *Heil*; fig. 3, column 5, lines 49-67), the method comprising:

discovering, by use of a an external data path engine coupled to the SAN, processes that are operable on a server coupled to the SAN (see *Heil*; column 5, lines 49-67; column 6, lines 1-56);

discovering, by use of said external data path engine coupled to the SAN, storage devices that are included in the SAN (see *Heil*; column 5, lines 49-67; column 6, lines 1-56);

responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes (see Weber; column 4, lines 44-67; column5, lines 1-33); and

constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes (see Weber; column 4, lines 44-67; column5, lines 1-33);

Regarding **claim 20**, the combination Heil-Weber discloses an Apparatus for creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN (see Heil; *fig. 3, column 5, lines 49-67*), the method comprising:

means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN (see Weber; column 8, lines 26-49; column 5, lines 6-33; see Heil; *column 6, lines 4-56*); and

means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 21**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising automatically constructing a datapath having one or more channels or threads (see Heil; column 6, lines 4-67).

Regarding **claim 22**, the combination Heil-Weber discloses the method of claim 2 1, the one or more channels or threads being one or more fibre channel connections (see Heil; column 8, lines 8-67).

Regarding **claim 23**, the combination Heil-Weber discloses the method of claim 19, constructing the data path comprising automatically constructing a datapath having one or more channels or threads (see Heil; column 6, lines 4-67).

Regarding **claim 24**, the combination Heil-Weber discloses the method of claim 23, the one or more channels or threads being one or more fibre channel connections (see Heil; column 8, lines 8-67).

Regarding **claim 25**, the combination Heil-Weber discloses the apparatus of claim 20, the data path being constructed automatically and having one or more channels or threads (see Heil; column 6, lines 4-67).

Regarding **claim 26**, the combination Heil-Weber discloses the apparatus of claim 25, the one or more channels or threads being one or more fibre channel connections (see Heil; column 8, lines 8-67).

Regarding **claim 27**, the combination Heil-Weber discloses the method of claim 1, constructing the data path that provides said set of attributes being performed without user or administrator intervention (see Weber, column 8, lines 26-49, column 5, lines 6-33).

Regarding **claim 28**, the combination Heil-Weber discloses the method of claim 19, constructing the data path that provides said set of attributes being performed without user or administrator intervention (see Weber, column 8, lines 26-49, column 5, lines 6-33).

Regarding **claim 29**, the combination Heil-Weber discloses the apparatus of claim 20, the data path being constructed without user or administrator intervention (see Weber, column 8, lines 26-49, column 5, lines 6-33).

Art Unit: 2143

Regarding **claim 30**, the combination Heil-Weber discloses the method of claim 19, discovering storage devices that are included in the SAN being performed automatically (see Heil; column 6, lines 4-67).

Regarding **claim 33**, the combination Heil-Weber discloses the method of claim 19, the external data path engine being operated as part of a general purpose computer (see Heil; column 6, lines 4-67).

Regarding **claim 31**, the combination Heil-Weber discloses the method of claim 1, further comprising:

connecting the SAN to a Wide Area Network (WAN) through a general purpose computer; and communicating with another processing system through the WAN using the general purpose computer (see Heil; column 5, lines 49-67).

Regarding **claim 32**, the combination Heil-Weber discloses the method of claim 31, communicating with another processing system comprising communicating with a server by using a TCP/IP protocol (see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 34**, the combination Heil-Weber discloses the method of claim 33, the external data path engine being coupled to a switching network of the SAN (see Heil; column 5, lines 49-67).

Regarding **claim 35**, the combination Heil-Weber discloses the method of claim 33, the general purpose computer being connected to a Wide Area Network (WAN) (see Heil; column 5, lines 49-67).

Regarding **claim 36**, the combination Heil-Weber discloses the method of claim 35, the general purpose computer being connectable to a plurality of other devices, networks or locations through the WAN (see Heil; column 5, lines 49-67).

Regarding **claim 37**, the combination Heil-Weber discloses the method of claim 35, further comprising communicating with another processing system through the WAN using the general purpose computer (see Heil; column 5, lines 49-67).

Regarding **claim 38**, the combination Heil-Weber discloses the method of claim 37, communicating with another processing system comprising communicating with a server using a TCP/IP protocol (see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 39**, the combination Heil-Weber discloses the apparatus of claim 20, further comprising:

a general purpose computer, the means for constructing the data path being operated as part of the general purpose computer; and a Wide Area Network (WAN), the general purpose computer being connected to the WAN, the general purpose computer communicating with another processing system through the WAN(see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 40**, the combination Heil-Weber discloses the apparatus of claim 39, the general purpose computer communicating with a server using a TCP/IP protocol (see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 41**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising automatically constructing a data path that provides said set of attributes (see Weber; column 8, lines 26-49, column 5, lines 6-33).

Art Unit: 2143

Regarding **claim 42**, the combination Heil-Weber the method of claim 19, constructing the data path comprising automatically constructing a data path that provides said set of attributes (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 43**, the combination Heil-Weber discloses the apparatus of claim 20, the means for constructing the data path automatically constructing the data path (see Heil; column 6, lines 4-67).

Regarding **claim 44**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising constructing a data path across multiple networks (see Heil; column 8, lines 8-67).

Regarding **claim 45**, the combination Heil-Weber discloses the method of claim 19, constructing the data path comprising constructing a data path across multiple networks (see Heil; column 8, lines 8-67).

Regarding **claim 46**, the combination Heil-Weber discloses the apparatus of claim 20, the means for constructing the data path constructing the data path across multiple networks (see Heil; column 8, lines 8-67).

Regarding **claim 47**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising constructing a data path across multiple locations (see Heil; column 8, lines 8-67).

Regarding **claim 48**, the combination Heil-Weber discloses the method of claim 19, constructing the data path comprising constructing a data path across multiple locations.

Regarding **claim 49**, the combination Heil-Weber discloses the apparatus of claim 20, the means for constructing the data path constructing the data path across multiple locations(see Heil; column 8, lines 8-67).

Allowable Subject Matter

5. **Claims 8-17** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's Request for Reconsideration filed on 05/16/2006 has been carefully considered but is not deemed fully persuasive. However, because there exists the likelihood of future presentation of this argument, the Examiner thinks that it is prudent to address Applicants' main points of contention.

A. Applicant contends that Heil teaches the use of a switched fabric, as opposed to a shared bus, to establish a data transfer path between a host device and a storage device. See Title. The difference between a switched fabric and a shared bus is illustrated in Figures 1 and 2 of Heil. Heil teaches that because there are three data paths 110 between the switch 111 and the storage devices 106 and only one link 108 between the switch 111 and the host device 108, the link 108 between the switch 111 and the host 104 becomes the limiting factor in the overall data transfer speed of the switched fabric 102. C:01. 6- lines 20-24. Heil uses a conventional concept referred to as an edge switch to resolve this

problem by creating an asymmetrical data transfer rate between the different links of the switch. Col. 6, lines 20-25, col. 9, lines 24-34. "An edge switch has a relatively high data transfer speed for one or two connections (e.g. the host-side communication path 108) and a relatively lower data transfer speed for the other connections (e.g. the storage-side communication paths 110)." D Col 6, lines 25-30.

B. Applicant contends that Heil merely describes the physical links of a SAN and that Heil does not relate to configuration or logical path selection. Rather, the paths in Heil are merely used in reference to a way of sending read and write commands and does not relate to provisioning. As the Examiner articulates on page 3, lines 2-4 of the Office Action, Heil does not teach parameterizing a set of attributes for a desired data path between a process and a storage device of a SAN. However, because Heil does not teach parameterizing the set of attributes for a desired data path between the process and the storage device of the SAN, it logically follows that Heil also does not disclose reconstructing the data path that provides said set of attributes-" Thus, the Applicant respectfully traverses the rejection of independent claim 1 at least for the reason that Heil does not disclose the elements of independent claim 1 as asserted in the Office Action. Similar logic is applied to traverse the rejections of independent claims 19 and 20.

10. As to "Point A" it is the position of the Examiner that Heil in detail teaches the limitations of the above mentioned claims. However, in view of Applicant's remarks, the

examiner has reviewed the prior art in view and has noted the following points.

Applicant picks and chooses specific areas of Heil to make his argument. For instance, applicant in page 12, second paragraph of the remarks mentions that "Heil teaches the use of a switched fabric, as opposed to a shared bus, to establish a data transfer path between a host device and a storage device. See Title." However, nowhere in the claims or specification of the current invention does the applicant make such comparison and specifies that his invention is all about shared bus technology. In the contrary, fig. 2 of the specification display a switching network similar to the network disclosed in the prior art [see Heil, fig. 11]. Applicant's argument is therefore moot in light of the disclosure of the prior art.

11. As to "Point B", it is also the Examiner's position the applicant mischaracterizes the disclosure of the prior art. Applicant contends that because the Examiner articulates in the previous action that Heil does not teach the details of parametrizing set of attribute pr a desired path, it follows that Heil also does not disclose reconstruction the data path that provides the set of attributes. The Examiner does not agree with this hypothetical syllogism which at first glance is counterfactual. Heil does in fact teach construction or reconstructing the data path [see Heil; column 6, lines 4-19].

Examiner notes with delight that no new matter has been added and that the new claims are supported by the application as filed. However, applicant has failed in presenting claims and drawings that delineate the contours of this invention as compared to the cited prior art. Applicant has failed to clearly point out patentable

novelty in view of the state of the art disclosed by the references cited that would overcome the 103(a) rejections applied against the claims, the rejection is therefore sustained.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

Art Unit: 2143


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-9000.

Jude Jean-Gilles

Patent Examiner

Art Unit 2143


DAVID WILEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

JJG 

August 1, 2001